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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,948	06/01/2006	Georgy Nikolaevich Vorozhtsov	GAP-PT001	3828

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EXAMINER	
MOSSER, ROBERT E	
ART UNIT	PAPER NUMBER
3714	

NOTIFICATION DATE	DELIVERY MODE
09/03/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/540,948	VOROZHTSOV ET AL.	
	Examiner	Art Unit	
	ROBERT MOSSER	3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☒ Claim(s) *11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/27/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement entered on June 27th, 2005 has been considered. A copy of the cited statement including the notation indicating its respective consideration is attached for the Applicant's records.

Claim Objections

Claim **11** is objected to because of the following informalities: First the cited claim references a method for performing a method obscuring the conclusion of the claim preamble and raising clarity issues as to whether the second presentation of the term method references the previously presented instance of "method" or an element distinct therefrom. Second claim 11 references "-and- the apparatus of claim 5" (emphasis added) raising further issues of clarity as the claim now presents both a method and apparatus in the same claim Appropriate correction is required.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because figures 2 through15 of the present drawings of record in the instant application are distorted and unsuitable for reproduction (See MPEP 608.02 & 37 CFR 1.84). Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new

drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1-4, 7,** and **10-11** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim **1** recites the limitation "the interaction" in line 4.

Claim **1** recites the limitation "the dynamic" in line 5.

Claim **1** recites the limitation "the object movement parameters" in 7.

Claim **3** recites the limitation "the interaction" in line 2.

Claim **4** recites the limitation "the area" bridging lines 1 and 2.

Claim **4** recites the limitation "the ball contact" in line 2.

Claim **4** recites the limitation "the ball impingement" in line 2.

Claim **4** recites the limitation "the court" in line 3.

Claim **4** recites the limitation "the break of trajectories" in line 3.

Claim **7** recites the limitation "the external light source" bridging lines 1 and 2.

Claim **10** recites the limitation "the spectral range " bridging lines 2 and 3.

Claim **11** recites the limitation "the interaction" in line 5.

Claim **11** recites the limitation "the dynamic" in line 6.

Claim **11** recites the limitation "the object movement parameters" in line 8.

There is insufficient antecedent basis for the above presented limitations in the respective claim.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims **1-4** and **11** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter based upon consideration of all of the relevant factors with respect to each claim as a whole, claim(s) **1-4** and **11** are held to claim an abstract idea, and is/are therefore rejected as ineligible subject matter under 35 U.S.C. 101.

In order for a claimed process to be considered statutory it must be: (1) tied to a particular machine or apparatus, or (2) transform a particular article into a different state or thing. The use of a specific machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility; the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity; and the transformation must be central to the purpose of the claimed process. In the instant application claims **1** and **11** reference the practice of a method

without a critical tie to a particular machine or apparatus performing the method nor do the pending claims demonstrate the transformation of an article into a different article.

Claims **2-4** depend from claim **1,** but fail to remedy the deficiencies of their parent claim and accordingly inheriting the deficiencies thereof.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1**, 2, 5, 6, 10,** and **11** are rejected under 35 U.S.C. 102(e) as being anticipated by Marty et al (US 7,094,164).

Claims **1** and **11:** Marty teaches an apparatus and method for tracking the movement of a sports object(basket ball) comprising:

recording the motion of a game object trajectories in the infrared light spectrum using an infrared camera (*Marty* Figures 1,2; Col 18:14-33);

wherein the capture is accomplished through recording a series of images (footmarks) resultant of the games interaction with the surround environment (*Marty* Figure 1; Col 18:34-52); and

analyzing the recorded series of images and infrared intensity thereof to determine the object movement parameters (*Marty* Figure 2; Col 18:34-67)

Claim **2:** In addition to the above, Marty teaches the detection of sports objects in multiple spectrum ranges through both recognizing varying intensities in the infrared spectrum and the incorporation of cameras suitable for capturing the Infrared spectrum and in addition thereto the visual spectrum (*Marty* Col 18:16-21, 18:34-36).

Claim **5:** In further addition to the above, Marty teaches the incorporation of a computer (*Marty* element 116) and a "mechanical oscillation receiver"/microphone (*Marty* Col 23:59-63).

Claim **6:** In further addition to the above, Marty teaches the incorporation of external infrared light sources (*Marty* Element 164, Col 18:14-16).

Claim **10:** In further addition to the above, Marty teaches the incorporation of optical filters for modifying the infrared sensitivity of the attached camera (*Marty* Col 18:17-21).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims **3** and **4** are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Marty et al (US 7,094,164).

Claim **3:** Marty teaches an apparatus and method for tracking the movement of a sports object as set forth above including the recognizing the placement of objects that are not the sports object placed both between the camera and the sports object and objects placed beyond the sports object and the camera (Col 9:33-42) and the use of infrared illumination intensity to determine the position of the game object as cited above. The above cited claim uses the term “shadow” to describe the difference in appearance of a game object that is perceived by a infrared camera when illuminated from a location opposite the camera and behind the game object as understood from the applicant’s specification. While Marty does not explicitly describe the use of game object shadow in determining the position of the game object, the described consideration of game object shadow is understood as inherent to the detection of the game object for any point where the object has a lower infrared signature then the background of the object wherein without such consideration the system of Marty would be incapable of functioning as disclosed to separate the game object from the

surrounding environment (Marty Col 9:33-42). Alternatively, it would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the recognition and utilization of game object shadows in the invention of Marty to distinguish the movement of the game object from the secondary objects present in the camera image as taught by Marty and cited above.

Claim **4:** Marty teaches an apparatus and method for tracking the movement of a sports object as set forth above including the recognizing the change in game object direction resultant of game object interactions (10:49-53, 17:28-43) however Marty does not explicitly describe the recognized change in game object direction as a "break of trajectories" the detection and identification of game interactions provided for in Marty is understood as an equivalent means for determining the change in game object path as claimed. Alternatively, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated a "break of trajectories" detection in the invention of Marty in order to provide a means to detect a change in object direction as taught by Marty and cited above.

Claims **7** and **8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Marty et al (US 7,094,164) in view of Chang et al (US 5,342,054).

Marty teaches the invention including the elements of infrared cameras and lights including the modulation of infrared through the use of filters as presented above however, Marty is silent regard the element of synchronizing of the lights and cameras. In a related sports tracking device employing infrared cameras and lights, Chang

teaches synchronizing the lights and camera to provide a fixed time of imaging/ snapshot (*Chang* Col 6:3-12). It would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated synchronizing the lights and camera to provide a fixed snapshots as taught by Chang into the invention of Marty in order to increase the energy efficiency of the invention of Marty through only activating the infrared light sources while the infrared image data is being captured.

Claims **9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Marty et al (US 7,094,164) in view of Sieber et al (US 5,231,483).

Marty teaches the invention incorporating a mechanical oscillation receiver/microphone as presented above and further including the ability to change the area of the camera's focus (*Marty* Col 10:54-62), Marty however is silent regarding the inclusion of an appliance with the camera effective to enable the rotation and movement synchronized with the mechanical oscillation receiver/microphone as claimed. In a related camera system, Sieber teaches the utilization of a mechanical oscillation receiver with a camera wherein the cameras rotation and movement are synchronized to the mechanical oscillation receiver and signals perceived thereby (*Sieber* Figures 1,2; Col 3:11-17, 3:39-52). It would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the camera tracking ability of Sieber into the invention of Marty in order to provide a manner for a singular camera to cover multiple game zones without a loss in game object perspective associated with panning/zooming out.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT MOSSER whose telephone number is (571)272-4451. The examiner can normally be reached on 8:30-4:30 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dmitry Suhol can be reached on (571) 272-4430. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dmitry Suhol/
Supervisory Patent Examiner, Art Unit 3714

/R. M./
Examiner, Art Unit 3714